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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,461	12/23/2003	Thomas Thoroe Scherb	P24575	8138
7055	7590	11/01/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			HUG, ERIC J	
			ART UNIT	PAPER NUMBER

1731

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,461

Applicant(s)

SCHERB ET AL.

Examiner

Eric Hug

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-33 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/471,369.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

Response to Amendment

The following is in response to the amendment filed on August 20, 2004.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-4, 7-21, and 27-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Edwards (US 6,248,210). Edwards discloses a pressing unit for dewatering an absorbent fibrous web such as tissue paper. The pressing unit includes a shoe press acting on a Yankee drying cylinder. The Yankee serves as the backing roll for the press shoe of the shoe press. Figure 9 shows the shoe press against the Yankee drying cylinder. The web contacts the drying surface of the Yankee. Underlying the web are a water-absorbent felt and an impermeable shoe press belt (blind bored or grooved, column 3, lines 57-59) that circulates the press shoe. Nip pressure profiles are illustrated for a shoe press in Figures 3, 7, and 8. The nip pressure profile for a shoe press is asymmetrical, with the peak pressure occurring near the end of the shoe where the web runs out of the press nip. The profile gradually increases to the peak pressure then steeply drops off. Figure 3 compares two shoe presses of different shoe lengths and a two-roll nip press utilizing a suction roll. The shoe presses illustrated in Figure 3 have shoe lengths of 50 and 120 mm, although the actual shoe length can be any length less than seven inches (equivalently 175 mm) as given in column 16, line 43. The nip line load is 90 kN/m in Figure 3. The peak pressure for the 120 mm shoe is about 1500 kN/m² (1.5 MPa) and the peak pressure for the 50 mm shoe is about 4500 kN/m² (4.5 MPa). Figure 12 shows the relationship between the Yankee

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press solids and the applied line load for the 50mm and 120mm shoes. Line loads range from about 87.5 kN/m to about 250 kN/m. The apparatus of Edwards comprises all the claimed elements, namely the press shoe, the press shoe length, the Yankee cylinder, the web, absorbent band, and impermeable band, and is capable of operating within the claimed limits of nip length, peak pressure, and line load as demonstrated by the examples provided.

The features described above read on the shoe press features and operating conditions of claims 1-4, the shape of the pressure profiles of claims 7 and 8, the features of web, felt, and belt of claims 16-18 and 21, the shoe press roll with jacket of claims 27 and 28 (by virtue of combination of a press shoe and a circulating belt), and the replaceable press shoe of claim 29 (by virtue of using shoes of different lengths).

Regarding the pressure gradients of claims 9-15, because the same shoe lengths, peak pressure values, locations of the peak pressures, and shapes of the pressure profiles are all disclosed by Edwards, it would be inherent that the rise in pressure and fall in pressure along the length of the shoe would also fall within the claimed ranges. For example, as can be determined from Figure 3, the pressure rise gradient for the 50 mm shoe is about 4.5MPa/40 mm or equivalently about 115 kPa/mm, which is close to the claimed 120 kPa of claim 11, at least within reasonable error. In actuality, the pressure rise gradient will occur a few mm short of 40 mm, so the pressure rise gradient may be higher. It is also clear that the pressure drop occurs over the last few mm of the press shoes, and is higher than 1000 MPa/mm.

Regarding claims 19, 20, and 30-32, useful felts are disclosed in column 1, line 64-column 2, line 5, and in column 2, line 61-column 31. These include felts comprising a base fabric with a stratified batting, and felts structured for imprinting a pattern onto the web. The

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claimed structural features of 19, 20, and 30-32 are conventional for the types of papermaking felts disclosed by Edwards.

Note that the claimed peak pressures, line forces, and pressure gradients impart no apparent structural limitations to the claimed machine, as they are merely limitations on the operational aspect of the machine. Without any further structural recitation, the press of Edwards is indistinguishable from the claimed apparatus.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-4, 7, 8, 16-18, 21, and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schiel (US 6,004,429). Note that Schiel qualifies as prior art under 35 U.S.C. 102(e). Schiel discloses a tissue making machine with a shoe press roll 28 contacting against a Yankee drying cylinder 60. Note that drying cylinder 60 is not called a "Yankee drying cylinder" by Schiel, but merely a "drying cylinder". However "Yankee drying cylinder" is the accepted terminology for a large drying cylinder in a tissue making machine where a creping doctor 62 crepes the web from the surface of the dryer. It would be immediately obvious to one skilled in the art that drying cylinder 60 is a Yankee drying cylinder. The web is held to the drying surface of the drying cylinder by felt 12 (a water-absorbent carrier) and shoe press belt (the water-impermeable pressing band that surrounds the press shoe; equivalent to belt 44 around shoe press roll 40). Schiel describes that the press shoe may be 50-120 mm long which reads on the claimed lengths in claims 1-3, and teaches a line force of 100-200 kN/m which reads on the

claimed line force range of claim 4. See column 5, lines 1-10. Schiel also discloses therein that the maximum pressing pressure in the pressure profile is advantageously 2.5-5.0 MPa, therefore the device is capable of also operating at any maximum pressure below 2.5MPa including 2 MPa (zero pressure would be the lowest possible pressure), therefore is capable of operation at claimed maximum pressure of claim 1. Schiel also discloses column 5, lines 1-10 that the nip pressure gradually increases at first in the web travel direction and then sharply drops, thus the peak pressure is near the rear portion (downstream portion) of the press nip. This reads on claims 7-8. The relative positions of the web, felt, and belt described above read on the arrangements and features given in claims 16-18. In column 5, lines 11-13 (among other recitations) the shoe press belt (jacket) is described as having grooves or blind bores, which reads on claim 21. Schiel also discloses a pre-press 26 ahead of the drying cylinder, which reads on claim 24. The pre-press comprises a lower suction roll, which reads on claims 25 and 26. As described above, the shoe press unit 28 is a shoe press roll, and the jacket about thereof is an impermeable press band, these two features read on claims 27 and 28.

Regarding the pressure of claim 1, even without express disclosure of a maximum pressure of 2 MPa or less, the 2.5 MPa pressure taught by Schiel falls within the ambit of "approximately 2 MPa" recited in the claims for a shoe length greater than 80 mm. There is no clear guidance to what "approximately" encompasses other than what is provided in the examples of the specification. The specification of the present invention discloses pressures exceeding 2.5 MPa for shoes of length within the 50-120 mm range taught by Schiel. For example, in one embodiment of the present invention, for a shoe length of less than or equal to 60 mm, the maximum pressure is 3.3 MPa. Thus, the pressure taught by Schiel is within the

scope of the present invention. Nevertheless, this pressure limitation imparts no apparent structure to the claimed machine, as it is merely a limitation on the operation of the machine. Without any further structural recitation, the press of Schiel operating at a peak pressure of 2.5 MPa is indistinguishable from the claimed apparatus.

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Laapotti (US 5,043,046). Edwards described in detail above discloses a press for pressing and dewatering an absorbent fibrous web such as tissue paper using a shoe press on a Yankee dryer. Edwards discloses that the press shoe extends cross-wise the width of the web, but does not disclose that the press shoe comprises a plurality of press elements arranged cross-wise and adjacent to one another, such press elements adapted to press the press shoe against the drying cylinder and being actuatable independently of one another. However, these features of a shoe press are well known as exemplified by the shoe press of Laapotti. Laapotti in Figure 2 teaches using a plurality of press elements in the cross-wise direction in order to control crowning, which is known to affect the widthwise quality of the web. Therefore, at the time of the invention, it would have been obvious to one skilled in the art that the press shoe of Edwards would comprise the above mentioned press elements in order to press a web uniformly across its width.

4. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Bluhm et al (US 5,556,511) and Tapio et al (US 4,139,410). Edwards described in detail above discloses a press for pressing and dewatering an absorbent fibrous web

such as tissue paper using a shoe press on a Yankee dryer. Edwards discloses using only a single press nip at the Yankee dryer rather than the claimed additional press nip.

The use of two or more press nips with a heated drying cylinder is well known as exemplified by Bluhm and Tapio. Bluhm discloses the use of a shoe press 9' against a surface of a heated counter roll 9, which Bluhm expresses as being advantageous for drying of tissue papers. The use of a wide nip avoids hurting the quality of a tissue web as compared to a conventional roll-roll press nip. Figure 5 shows the use of two shoe presses 9' against the heated counter roll, in which Bluhm says can be advantageous depending on the drying requirements (column 5, lines 1-8). The known use of a Yankee drying cylinder is also discussed by Bluhm in column 1, lines 16-24, so there is some suggestion by Bluhm for using the two shoe presses against the surface of a Yankee drying cylinder. Even if it not readily apparent that the two shoe presses can be used against a Yankee drying cylinder, Tapio is cited here to exemplify that the use of two press nips against a Yankee drying cylinder is well known for the purpose of further drying the web enabling it to adhere better to the Yankee cylinder when later creped. Therefore, at the time of the invention it would have been obvious to one skilled in the art to utilize an additional shoe press nip against the Yankee drying cylinder in Edwards, as taught by Bluhm and Tapio to improve the drying of the tissue web as conditions dictate and to insure adhesion of the web to the Yankee dryer during creping.

5. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Sauer (US 5,019,211). Edwards described in detail above discloses a press for pressing and dewatering an absorbent fibrous web such as tissue paper using a shoe press on a Yankee dryer.

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Edwards does not disclose a web having curled fibers, however the use of curled fiber in making absorbent webs is well known in the art, as disclosed by Sauer. Sauer discloses method steps of making absorbent webs with curly fibers that include drying on a Yankee dryer and creping. Therefore, at the time of the invention, it would have been obvious to one skilled in the art that the shoe press of Edwards would be useful for making absorbent webs with curly fibers.

Response to Arguments

Applicant's arguments filed August 20, 2004, with respect to the rejections set forth previous have been fully considered. Upon further consideration, a new grounds of rejection is made in view of the references cited previously.

Regarding Edwards (US 6,248,210), arguments regarding the optimization of operational parameters are acknowledged. The rejections given above based on Edwards have been directed more towards the structural aspects of the shoe press/Yankee dryer arrangement. The examiner also recognizes Applicant's argument that a conventional shoe press disclosed by Edwards (column 5, lines 55-65) is ill-suited for low weight absorbent papers. However, upon closer inspection, the conventional shoe press described by Edwards comprises a counter roll which is not a Yankee dryer, and has a diameter which is small by comparison to that of a Yankee dryer. This is not the essence of the Edwards invention, but rather a point of comparison (see also Figure 3).

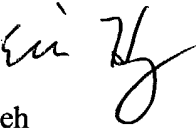
Regarding Schiel (US 6,004,429), arguments regarding the optimization of operational parameters are acknowledged. The rejection given above has been directed more towards the structural aspects of the shoe press/Yankee dryer arrangement.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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